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A THIRD CAPTURE ON THE FLORIDA COAST OF THE WHALE SHARK, *RHINEODON TYPUS*

ON June 11, 1919, a telegram was received at the American Museum of Natural History announcing the capture on the preceding day near Miami, Florida, of a 31-foot *Rhineodon* and asking if the museum wanted it for a specimen. Since it was too late to have the soft parts preserved, a message was sent making an offer for the head, gill rakers, fins, tail, and backbone, but no answer was returned.

This specimen of the whale shark was taken June 10, 1919, in the Bay of Florida near Man-of-War Key about eight miles southeast of Cape Sable. Information concerning its capture has been difficult to get (the latest account reaching me only recently), but the accounts agree that this great shark, which when first sighted looked like a piece of wreckage, was aground in about five feet of water, the center of the body on the shoal but the head and especially the tail fairly free, while the back extended about a foot above water. About a hundred bullets were fired into the shark before it finally succumbed. Holes were then cut in the skin and ropes run through these to hold the body fast when the tide rose. It was then towed to the mouth of the canal at Florida City and there skinned and the jaws taken out. Unfortunately, neither the gill-rakers nor the vertebrae were saved.

To Dr. H. Schlegel, one of the captors, I am indebted for two photographs showing the skinning, and for another in which the fish is seen lying somewhat on one side in the water alongside the wharf. This picture shows the gill slits, the dorsal ridge extending back to the first dorsal fin, the broad back from which the vertical stripes have faded, and most important of all, the lateral keel on the caudal peduncle which is such a marked feature in the description of the original discoverer, Dr. Andrew Smith.

As to size, this specimen of *Rhineodon* was said to measure 31 feet and some inches long. The body was about eight feet wide, and the mouth about five feet across. The eye is

described as being as large as a base ball, but having a pupil about the size of the eye of a child. It is greatly to be regretted that there was no scientifically trained person at hand to make careful measurements and give an accurate description of this specimen. The above figures are, however, believed to be substantially correct. The weight was estimated to be about nine tons, which is probably an excessive figure.

The skin has been purchased by Mr. Arthur D. Lord, of New York, and presented to the American Museum of Natural History. It is planned to have the skin mounted, or more probably a cast made. This will be the only mounted specimen in any museum in the new world. In the old world there are specimens in the British Museum, the Paris, Madras, Colombo (Ceylon) museums, and one in the hands of a private dealer in curios in Japan. In this country there is a skin in the United States National Museum and a mounted specimen in Miami, Florida.

This is the third capture in Florida waters of *Rhineodon typus*. The first, a small specimen 18 feet in length, came ashore at Ormond, Florida, in 1902. The second specimen was taken by Captain Charles Thompson, of Miami, and Mr. Charles T. Brooks, of Cleveland, Ohio, toward the close of May, 1912. This fish measured 38 feet long and about 18 feet in circumference, and Mr. Brooks estimated its weight at five tons, while Captain Thompson thought it would weigh three times as much. Captain Thompson had this specimen mounted and placed on exhibition in Miami.

It is significant that two of the three Florida specimens have been taken in localities not more than thirty to forty miles apart, while the third, although it came ashore some distance further north, was evidently carried there by the Gulf Stream. Further it is interesting to note that one specimen was found dead, and that the other two put up fights for liberty by no means in correspondence with their immense size and strength. Mr. L. L. Mowbray, Director of the Miami Aquarium, from certain

information which has come to him from fishermen who ply their trade out in the Gulf of Mexico, thinks that near the center of the Gulf these great fish have a breeding ground, and that they are fairly abundant.

These sharks are most abundant around Ceylon, in the East Indies around Java, north among the Philippines and to the coasts of Japan. Recently a new habitat record in this region has been noted. Mr. J. Dewar Cumming, in his book "Voyage of the Nyanza . . . in the Atlantic and Pacific [Oceans]," London, 1892, says that at Hillsborough Island, the largest of the Coffin or Bailey group, in the Bonin Archipelago, he saw a whale shark, which ". . . must have measured 25 to 30 feet in length, and was at least eight feet across the shoulders. The color was of a bluish-gray, dotted with large white spots."

Rhineodon is, however, found most frequently around the Seychelles Islands in the western Indian Ocean, about midway betwixt the equator and the northern end of Madagascar. In 1914-15, an expedition was planned for the Seychelles to study *Rhineodon*, but had to be postponed on account of the great war. With the coming of peace, plans were again made, but in the face of the enormous rise in the cost of transportation, of living expenses and all commodities, another postponement has been necessary. In the meantime a correspondent at Mahé, Seychelles Islands, writes that *Rhineodon* is more plentiful there than ever.

For fuller information (in fact everything known) about this great fish, references may be made to papers by the writer previously published elsewhere.¹

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¹ "Natural History of the Whale Shark, *Rhineodon typus* Smith," *Zoologica*, Scientific Publications New York Zoological Society, 1915, Vol. 1, pp. 349-389, 12 figs. "*Rhineodon typus*, the Whale Shark: Further Notes on its Habits and Distribution," *SCIENCE*, 1918, N. S., Vol. 48, pp. 622-27.

SCIENTIFIC EVENTS

THE SPAWNING GROUNDS OF THE EEL

THE Bureau of Fisheries reports that Dr. Johannes Schmidt, a distinguished Danish scientist, has recently completed an exploring voyage across the Atlantic in the steamer *Dana*, of the Danish Commission for Marine Investigation. Dr. Schmidt, who is director of the Carlsberg Laboratory in Copenhagen, for about 15 years has been devoting special attention to the fresh-water eels of Europe and America, and is the leading authority on these interesting fishes, which are relatively much more important in western and southern Europe than in eastern America. Dr. Schmidt has made important contributions to the sea life of the eels, and during the recent cruise from Gibraltar to Bermuda and the West Indies collected large numbers of larval eels, with a view to determining the spawning grounds of the European and American eels, which represent distinct but closely related species. Dr. Schmidt says:

I think I am now able, after so many years' work, to chart out the spawning places of the European eel. The great center seems to be about 27° N. and 60° W. [southwest of Bermuda], a most surprising result, in my opinion. The American eel seems to have its spawning places in a zone west and south of the European, but overlapping. The larvæ of both species appear to pass their first youth together, but when they have reached a length of about 3 centimeters the one species turns to the right, the other to the left.

The assistance of the Bureau of Fisheries is invoked by Dr. Schmidt in obtaining further specimens of larval eels taken from waters off the American coast south of Cape Hatteras in summer and autumn; most of the collections heretofore made in that region have been in winter when few eels are spawning.

AGRICULTURAL WORK AT THE UNIVERSITY OF NANKING

THE latest annual report of the college of agriculture and forestry of the University of Nanking, China, as abstracted in the *Experi-*